Natural

Release Notes

Version 5.1.1 for Windows

This document applies to Natural Version 5.1.1 for Windows and to all subsequent releases. Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

Table of Contents

Natural Version 5.1.1 Release Notes for Windows

These Release Notes describe in summary form the enhancements and new features that are provided with Natural Version 5.1.1 for Windows.

In addition to providing the enhancements and new features described below, Natural Version 5.1.1 consolidates all error corrections, modifications and enhancements provided with previous releases of Natural.

For background information, see the Natural Version 3.1.1, 4.1.1 and 4.1.2 Release Notes for Windows which are available with Version 5.1.1 on the current Natural Documentation CD-ROM (in the folder RN Archive) and on ServLine24.

These Release Notes cover the following topics:

General Information

This section covers the following topics:

- Operating Systems
- Installation
- Migrating Applications to Version 5.1
- Upcoming Natural Releases
- Known Issues
- Documentation
- Online Help

Operating Systems

Natural for Windows Version 5.1.1 is available on the following operating systems:

In a Natural development environment:

- Microsoft Windows NT 4.0 SP6
- Microsoft Windows 2000 Professional SP1
- Microsoft Windows 2000 Server, Advanced Server

In a Natural run-time environment:

- Microsoft Windows NT 4.0 SP6
- Microsoft Windows 2000 Professional SP1
- Microsoft Windows 2000 Server, Advanced Server
- Microsoft Windows 98
- Microsoft Windows ME

Installation

Default Version

If the NATVERS parameter is omitted at Natural startup, Natural will start using the version for which the module was built instead of the version specified as the DEFAULT-VERSION in the sag.ini file.

License Key File Handling

A path to a valid license key file is required during installation of Natural. The license key file is an XML file which is usually supplied on diskette with Natural. Alternatively, you can obtain a license key file from Software AG via your local distributor. The license key file will be delivered either by E-mail or on diskette as required.

Migrating Applications to Version 5.1

General

Natural applications generated with Natural 4 or Natural 3 can be executed with Natural 5 without cataloging the applications. However, to make use of any new features and improvements, such as portable GPs, recataloging with Natural 5.1.1 is required.

NaturalX COM classes

The assignment sequence of Dispatch IDs to methods and properties (which is done when a NaturalX class is registered as a COM class) has been changed due to a problem correction. When a registered NaturalX class is recataloged with 5.1, the class should be reregistered in order to create a new type library that reflects the new Dispatch IDs. Clients that use early binding must then be rebuilt. Early binding is generally used in C/C++ and Bolero and can, but need not be used in Visual Basic. Natural clients use late binding and are therefore not affected by the change.

Upcoming Natural Releases

Large and Dynamic Alpha/Binary Formats in Natural RPC

The support of large alpha/binary and dynamic alpha/binary formats in Natural RPC will be realized in a future version of Natural RPC.

SYSPAUL and SYSTRANS

The utilities SYSPAUL and SYSTRANS will be discontinued with the next Natural release.

Handling for Database Access Loops with Regard to the Adabas Multifetch Feature

Natural for Windows makes use of the Adabas Multifetch feature for database access commands L1, L2, L3 and L9. This default configuration can be disabled for specific combinations of Adabas DBID, file number and command code.

In a future release of Natural this handling for database access loops will be subject to change.

Known Issues

Size Limitations Natural RPC Variables

Until the support of large alpha/binary and dynamic alpha/binary formats is realized, the limitations of 253 for format A and 126 for format B are still in effect.

Restrictions for SYSRPC When Mapped to a Remote Development Server

The number of entries that can be handled remotely is restricted to 280 for the Service Directory and 182 for stubs.

Leaving the Natural Debugger on Remote Environment

When you exit the Natural Debugger on a remote mainframe system, the program execution continues, but the debugging control of the program execution stops.

Documentation

A revised set of Natural documentation is provided with this release of Natural Version 5.1.1 for Windows. All enhancements and new features described in these Release Notes are documented in the Natural Version 5.1.1 documentation set.

The documentation is provided in HTML format for online access using a Web browser and also in PDF format for viewing/printing using Adobe Acrobat.

In addition to the extensive hyperlinks available for online access and navigation, a powerful online search facility is provided.

For an overview of the Natural 5.1.1 documentation set, see the Documentation Main Menu.

Online Help

A comprehensive HTML-based online help facility is provided which can be viewed with Internet Explorer Version 4 or above. You invoke the Natural help facility using the F1 key anywhere you need context-sensitive help within Natural Studio.

Note:
If an error message is received when using the F1 key for the first time, the help system of Windows NT must be updated. In this case, you will find on the Natural CD-ROM under the directory Help an update file (there are actually two update files available: one for English and one for German). Start the appropriate update file for the language in use by double clicking on the file. This will update the online help as required. If you are using a language other than English or German, you will need to download the update file for the language in use from the Microsoft web page. The URL for this download is contained in the Readme file.

Online Documentation as Help

You can choose to use the online documentation instead of using the online help system with Internet Explorer. When you press F1, the online documentation relevant to your context within Natural Studio invoked. To set this up, you must specify a path to the Natural documentation set (for example in a network environment or on CD) in the Documentation Base parameter in the local configuration file during installation of Natural. URLs are possible as paths also. For further information, see the topic Installation Assignments under Local Configuration File - Natural.INI in the Configuration Files section of your Natural Operations documentation.

New Features

This section covers the following topics:

- Natural’s Single Point of Development
- XML Toolkit
- New Features in the Natural Studio User Interface
- Natural Studio Plug-ins and the Plug-In Manager
- New Features in the User Interface for Natural Applications
- Portable Generated Programs - GPs
- Entire System Server Interface
- New Parameters
- New Statements
- New System Commands
- New User Exits

Natural’s Single Point of Development - for users of both Natural for Windows and Natural for Mainframes

Natural’s Single Point of Development connects Natural Version 5 for Windows to Natural 3.1.5 for mainframes via the new Natural Development Server plug-in (NDV 1.1.1). This infrastructure enables the developer to create and maintain Natural applications for the mainframe using Natural Studio on the Windows desktop. The following core features are offered:

- **Remote file manipulation**
  In the Natural Studio views, developers can manipulate (move, copy) program objects, wherever those objects are located.
- **Remote editing**
  Natural source files and DDMs are transparently retrieved from and stored to the target environment, and edited in the Natural Studio.
- **Remote compiling**
  Compiles are initiated from Natural Studio by submitting commands to the target environment.
- **Remote debugging**
  The application executes on the target environment, with debugging controlled from Natural Studio. For further information, see the Debugger documentation.
- **Object locking**
  Natural Studio provides a locking mechanism that prevents concurrent updating of Natural objects. These can be local Natural objects or objects accessed on a remote development server. For further information, see the section Object Locking in the Remote Development documentation.
- **XRef GUI Client**
  The XRef GUI Client Plug-In is used to navigate through cross-reference information created during CAT or STOW commands in the development server file. The information is displayed in a tree view in Natural Studio. Both types of references - active and passive (i.e. referencing and referenced) can be displayed. Navigating through the hierarchies of active and passive references is possible within the tree-view. For further information, see the section XRef GUI Client - Overview in your Remote Development documentation.
- **Terminal Emulation**
  If input or output from a mainframe screen is required, a terminal emulation window displaying the appropriate screen appears.
- **Application Concept**
  An application is a logical view of a collection of interconnected programming elements. Together, they form a functional unit which covers the business logic for a particular business problem. An application consists of a set of references to libraries and their Natural objects and/or sub-applications (business objects). The contents of a library (Natural objects, resources, etc.) can belong to different applications. Information concerning an application (the application description) is held in the development server file which is accessible from all platforms. Applications are displayed and manipulated in the application workspace (AWS). For further information, see the section Application Concept in the Natural's Single Point of Development documentation. See also the entries in the Glossary starting with the entry Application.

For further information, see the Natural's Single Point of Development documentation and the section Remote Development in the Natural Programming documentation.

Request for Customer Feedback on Application Workspace

With Natural 5.1.1 for Windows we have introduced the concept of the application and the application workspace as described above. The aim is to offer customers, in addition to the library workspace, an application-specific perspective. It is planned that the application workspace will support all operations concerning Natural objects and thus make it possible to develop an application without using the library workspace.

We are very interested in customer reaction to the current version of the application workspace and to our future plans. We would like to proceed with development of the application workspace according to customer requirements. If you have suggestions or comments, we would greatly appreciate your feedback at the following address:

http://www.softwareag.com/natural/contact.htm

Limitations

When you are working with Natural's Single Point of Development, you will encounter a few limitations which are due to the different capabilities of the graphical user interface available on the local site and the character-based user interface that exists on the remote site. There are also some restrictions which will be eliminated in one of the next releases. For further information, see the topic Limitations in your Single Point of Development (SPoD) documentation.

XML Toolkit

The XML Toolkit enables developers to process XML documents within Natural. The toolkit includes a wizard which generates Natural source code that provides the following features:

- Mapping Natural data definitions to DTDs;
- Serializing a Natural data structure and assigning its contents to an XML file;
- Mapping DTDs to Natural data definitions;
- Parsing an XML file and assigning its contents to a Natural data structure.

New Features in the Natural Studio User Interface

Dialog Wizard

The Dialog Wizard is a tool for creating dialogs for specific purposes. There are three types of dialogs which can be adapted to your requirements:

- Frame Dialog, applicable in an application frame.
- Selection Dialog, applicable for reading, saving or opening objects.
- Tab Dialog, applicable in a help dialog or for option settings.

Properties for Natural Objects

A Properties dialog displaying statistical information is available via context menu in the application workspace and the library workspace for every node.

Common Status Bar for Natural Studio

There is now one status bar common to all Natural editors. The old status bars may still be used if desired.

Results Interface

The Results Interface enables programmers to display data within the Results window. The design and the usage of tabs can be determined via user exits. The Results Interface and the Results window are both accessed from Natural Studio. For further information, see the topic Results Interface in the Natural Studio documentation.

Natural Studio Plug-ins and the Plug-In Manager

The Natural Studio user interface is extensible by plug-ins. Plug-ins can be activated and deactivated with the Plug-In Manager. Part of the Natural Studio functionality itself is delivered in the form of plug-ins. A sample plug-in is delivered in source code in the library SYSEXPLG. For further information about Natural Studio Plug-ins and the Plug-In Manager, see the section Plug-In Manager in the Natural User's Guide.

Note:
With the current version of Natural Studio the plug-in interface is not released for external use. The interface will be further extended and possibly modified in upcoming versions. It is therefore not recommended that you implement your own plug-ins with the current version.

New Features in the User Interface for Natural Applications

Common Controls

The standard windows toolbar and status bar controls are now supported. Multiple toolbar controls can be defined per dialog, which can be dockable and/or floatable and can contain child controls. The status bar control can contain multiple panes, each of which may be independently modified (e.g. disabled) and can contain an icon.

Signals

User interface commands can now be independently-defined as "signals", and referenced by any number of toolbar or menu items. This minimizes program maintenance overhead in situations where the same command needs to be accessible from several places (e.g. from a menu bar submenu item, a toolbar item and a context menu item).

Cool Menus

Bitmaps can now be defined for menu items, which are displayed if the containing submenu or context menu is marked as a "cool menu".

Portable Generated Programs - GPs

GPs which are cataloged with Natural Version 5 are now portable across any Natural-supported UNIX, OpenVMS and Windows platform. This means that GPs which are cataloged with Natural Version 5 are now executable with Natural Version 5 on these platforms without recompilation. This feature simplifies the deployment of applications across open systems (UNIX, OpenVMS and Windows) platforms.

Natural applications generated with Natural Version 4 or Natural Version 3 can be executed with Natural Version 5 without cataloging the applications again (upward compatibility). In this case, the portable GP functionality is not available. To make use of the portable GP and other improvements, cataloging with Natural Version 5 is required.

Command processor GPs are not portable. The portable GP feature is not available for mainframe platforms. This means that Natural GPs which are generated on mainframe computers are not executable on UNIX, OpenVMS and Windows platforms without recompilation and vice versa.

For further information, see the section Portable Natural Generated Programs in the Programming Guide.

Entire System Server Interface

With Natural Version 5.1.1 for Windows, it is now possible to access Entire System Server (ESY) on the mainframe via the Entire System Server Interface (ESX). Entire System Server is a Software AG product that makes mainframe operating system information and system services available to the user, whether it be an application developer, systems programmer, or computer operator. Entire System Server provides a logical view of the operating system in much the same way as a database management system such as Adabas.

For demonstration purposes, an example application SYSNPE is available with Natural Version 5.1.1.. SYSNPE contains sample Natural programs to illustrate the usage of operating system resources for the supported mainframe platforms OS/390, VSE/ESA and BS2000/OSD.

For further information on Entire System Server functionality, see the Entire System Server Overview in your mainframe documentation.

Prerequisites and installation instructions are documented in the section Setting Up the Entire System Server Interface in Installing Natural Version 5.1.1 for Windows.

New Parameters

ENDIAN

The ENDIAN parameter is used to increase the execution performance of portable GPs. The ENDIAN parameter determines the endian mode in which a portable GP is generated during compilation. There are three possible settings of the parameter:

DEFAULT	The endian mode of the machine on which the GP is generated.
BIG	Big endian mode: the high-order byte of the number is stored in memory at the lowest address, and the low-order byte at the highest address (the big end comes first).
LITTLE	Little endian mode: the low-order byte of the number is stored in memory at the lowest address, and the high-order byte at the highest address (the little end comes first).

For further information, see the section Portable Natural Generated Programs in the Programming Guide and the section ENDIAN in your reference documentation for parameters.

ESXDB - Natural Configuration Utility

The ESXDB parameter specifies the database ID used for Entire System Server's DDMs. The parameter can be modified at the following location:

```
Natural Parameter Files/NATPARM/Product Configuration/Entire System Server
```

For further information, see the section ESXDB in your reference documentation for parameters.

REMOVE_USER_DOMAIN for .ini Files - Natural Web Adapter Server Extension

The parameter REMOVE_USER_DOMAIN is used to remove the domain name from an IIS user ID so that it can be passed to any server running Natural Security. For further information, see the topic Natural Web Server Extension Settings in the section Natural Web Server Extension - Initialization File in the Natural Web Adapter Server documentation.

New Natural Statements

REQUEST DOCUMENT

The REQUEST DOCUMENT statement gives you the means to access a document in an external system/on an external HTTP server. See the section REQUEST DOCUMENT in your Natural Statements documentation.

PROCESS

The PROCESS statement is used in conjunction with Entire System Server (mainframe only) via the Entire System Server Interface. See the section PROCESS in your Natural Statements documentation and the section Getting Started in the Entire System Server User's Guide (part of your mainframe documentation).

New System Commands

MAP and UNMAP Commands

These commands apply to Windows platforms and are used for remote development only.

The MAP command enables you to establish a connection to a development server using the command line.

You can use the UNMAP command to disconnect a session on a mainframe development server. When issued in the command line, the UNMAP command disconnects the currently active remote environment.

UNLOCK Command

This command applies to Windows platforms where it is used for remote development only. It enables you to view locked objects and unlock them if required.

Although this command is recommended for use by the Natural administrator only, he can enable its use for selected user profiles in Natural Security.

New User Exits

NATRPC01

You can now use the new user exit NATRPC01 (described in the Natural Remote Procedure Call documentation) instead of using error transactions. Natural RPC does not offer the use of error transactions on the server side. Although it is possible to define an error transaction, control will never be passed in the event of an error.

USR2032N

With the new user exit USR2032N, Natural provides the same functionality as an EntireX client, that is, the commit option is set for the next CLOSE CONVERSATION statement. This means that an implicit END TRANSACTION is issued on the server side when the conversation is closed.
This enables you to write an application on the server without using explicit END TRANSACTION statements, this application being callable from a Natural client as well as from an EntireX client.
The user exit has to be called before the next CLOSE CONVERSATION statement is executed.

USR5001N - USR5016N

The user exits USR5001N - USR5016N for the Results Interface can be found in the library SYSEXT. An example of the various functions is available in USR5001P with the command handles in USR5001A and USR5001B.

Changes and Enhancements

This section covers the following topics:

- General Enhancements
- Natural Studio User Interface Enhancements
- User Interface Enhancements for Natural Applications
- Parameter Enhancements
- Statement Enhancements
- Utility Enhancements
- Nat Web Interface

General Enhancements

Steplibs

*STEPLIB is only considered as a steplib when the user is in a FUSER library. The location of the library given as LSTEP is derived from its name. Apart from the library SYSTEM, libraries SYSxxx are assumed to be in FNAT and other libraries are assumed to be in FUSER.

Natural Studio User Interface Enhancements

Extended Options Dialog

Now all options for Natural editors, the Output window and the workspace can be set and centrally administered in the Options dialog (accessible from the Tools menu).

Extended Profiling

Now the following information is saved at logout and restored at login:

- Map Environment information
- Applications mapped in the application workspace
- Breakpoints, watchpoints and watch variables in the Debugger.

Library Workspace

The library workspace has been modified to include the Remote Development capability introduced with Natural's Single Point of Development. For further information, see the topic Library Workspace under Main Components in the Natural Studio documentation.

User Interface Enhancements for Natural Applications

Enhanced Bitmap Handling

Bitmaps can now be defined as transparent, implying that pixels in the specified background color are not drawn. Transparent bitmaps are supported for bitmap controls, toolbar items and cool menu items. In addition, improvements have been made in the image quality and redraw speed of scaled bitmaps.

Accelerators

The range of possible accelerators definable for dialog elements has been extended. Examples of accelerator keys which are now possible are "Ctrl+Alt+S", "Shift+Enter" and "Delete".

Removed Restrictions

It is now generally possible to send an event to a dialog when another event for the same dialog is already in progress, without a NAT6140 error occurring.

Edit areas can now contain more than 30000 characters. The actual limit now depends on the operating system and memory configuration.

Parameter Enhancements

USIZE

USIZE minimum and default-Size changed from 1 MB to 10 MB. You can leave the USIZE parameter set to 1MB, but the next time you change the setting in any way, Natural will only accept 10MB as a minimum value. If USIZE is set to zero, memory capacity is unrestricted.

Statement Enhancements

INTERFACE

The new EXTERNAL clause is used to mark an interface as implementation of an interface that is declared in a different class. The new ID clause in the METHOD and PROPERTY definitions can be used to explicitly assign specific Dispatch IDs to methods and properties, where this might be required. Both enhancements support the re-implementation of externally defined COM interfaces in a NaturalX class. See the sections INTERFACE and DEFINE CLASS in the Natural Statements documentation.

Utility Enhancements

Interaction with a Remote Development Server

Most of the Natural Studio graphical utilities and system commands are enabled to interact with a remote development server. Some Natural for Mainframes specific utilities for which Natural Studio does not offer a graphical user interface are made available by the terminal emulation.

SYSRPC

The SYSRPC user interface has been completely revised. Data is now arranged in a tree view from which actions such as modifying data or pinging servers can be executed. The Service Directory is saved as XML formatted Natural text, the previous format (as subprogram NATCLTGS) is still supported and needed by RPC runtime, when using stubs. The service directory can now be generated in the user's current library.

When mapped to a Remote Development server, you can generate both the Service Directory and stubs in your current user library. The number of entries that can be handled remotely is restricted to 280 for the Service Directory and 182 for stubs.

For further information, see the SYSRPC documentation.

Natural Configuration Utility

The following changes have been applied to the Natural Configuration Utility:

1. There is a new parameter ESXDB at the following location:
   `Natural Parameter Files/NATPARM/Product Configuration/Entire System Server`
2. The tree view node
   `Natural Parameter Files/NATPARM/Product Configuration/ETP`
   has been renamed to
   `Natural Parameter Files/NATPARM/Product Configuration/Entire Transaction Propagator`
3. The tree view node
   `Natural Parameter Files/NATPARM/Client Server/Remote Debugging`
   has been moved to
   `Natural Parameter Files/NATPARM/Natural Development Environment/Remote Debugging`

Natural Web Interface

HTML to Natural Conversion Program - HTML2NAT

The conversion program HTML2NAT has been integrated into Natural and is no longer a stand-alone program. The HTML to Natural utility can now be accessed via the new dialog (program HTML2NAT) in the Natural library SYSWEB (Windows NT only). This means that you do not have to import the generated programs into Natural as they are saved and stowed directly in a Natural library.

The utility includes Class Update for DCOM access and access to the new Natural Web Online Test Utility, the output of which can be displayed with a browser.

Now, not only the <Natural> </Natural> Tags can be used but also ASP-like script commands which are differentiated from text by the <% and %> delimiters.

For further information, see the Natural Web Interface documentation .

Renamed Programs in Library SYSWEB

Programs starting with NAT-* in the library SYSWEB have been renamed to WEB-* for improved consistency.

Now the only elements in the library SYSWEB starting with NAT-* are subprograms which can be called from the Internet.

All elements in the library SYSWEB starting with WEB-* are online utilities which are called from the command line.

Natural and Tamino

This section covers the following topics:

- Example SYSEXINO
- Tamino Server Extensions

Example SYSEXINO

The example at library SYSEXINO has been extended to work together with the Tamino Server Extension example delivered in the library SYSEXSXS. It is now possible to change the name of the Tamino Collection used. For further information about the Tamino Server Extension example see the following paragraph.

Tamino Server Extensions

Tamino Server Extensions based on COM can be developed with Natural. This requires Tamino version 3.1. An example of a Natural based Tamino Server Extension is contained in the library SYSEXSXS. This library also contains modules that support the development of your own Tamino Server Extensions. The sample Tamino Server Extension in SYSEXSXS can be driven comfortably using the Tamino DOM Demo application contained in the sample library SYSEXINO. See the section Tamino Server Extensions in the Natural User’s Guide for information on how to run the example and how to develop your own Tamino Server Extensions with Natural. See the Tamino documentation for general information about Tamino Server Extensions.

Removed Functionality

This section provides an overview of functionality no longer supported with Natural Version 5.1.1. and covers the following topics:

- Natural RPC Support of CSCI
- Natural RPC Support of CSCPATT Parameter
- Natural Silk Interface

Natural RPC Support of CSCI

As announced, CSCI is no longer supported with this version of Natural RPC for Windows.

Natural RPC Support of CSCPATT Parameter

As the CSCI transport protocol is no longer supported, the CSCPATT profile parameter will be rejected. The value CSCI will be rejected if it is specified as transport protocol for the DFS, RDS or TRANSP parameters.

Natural Silk Interface

The Natural Silk interface is no longer delivered on the Natural 5.1.1 installation CD.

Natural RPC Version 5.1.1

As of Natural Version 5.1.1 PL 6 for Windows, the Natural Remote Procedure Call is available as a separate subcomponent of Natural. This measure will enable the Natural development team to provide new Natural RPC versions independent of new Natural versions for the various platforms supported. Currently, the old and the new Natural RPC versions are both available.

Note:
The default installation of Natural Version 5.1.1 PL 6 will use the old Natural RPC version.
For details on installing the new Natural RPC with Natural Version 5.1.1 PL 6, see RPC Installation below.

This section describes the product features, changes and enhancements introduced with Natural RPC Version 5.1.1. The following topics are covered:

New Features

- Support of Large and Dynamic Alpha and Binary Variables
- Maximum Length for Node and Server Names Increased to 32 Characters
- Support of the EntireX Broker ACI V6
- Support of SSL for the TCP/IP Communication
- Support of EntireX Location Transparency
- New User Exit USR2035N
- Prerequisites

Enhanced Features

- Support of Multiple EntireX Broker Logons (User EXIT USR2071N)
- Enhancements to User Exits
- Enhancements to Status Function RPCINFO

SYSRPC Utility Enhancements and Modifications

- Support of Long Node and Server Names
- Support of EntireX Location Transparency
- Add Properties for Old Remote Directory and the Transport Protocol to Local Directory

Changed Features

- Implicit END TRANSACTION in a Conversation
- Release of Adabas Retain Sets
- Changes to RPCERR
- Changes to PIng and TErminate Messages

Natural RPC Installation

New Features

- Support of Large and Dynamic Alpha and Binary Variables
- Maximum Length for Node and Server Names Increased to 32 Characters
- Support of the EntireX Broker ACI V6
- Support of SSL for the TCP/IP Communication
- Support of EntireX Location Transparency
- New User Exit USR2035N
- Prerequisites

Support of Large and Dynamic Alpha and Binary Variables

With Natural RPC Version 5.1.1, large alpha/binary and dynamic alpha/binary formats are supported in the parameter list of a remote CALLNAT execution. In case of dynamic alphay/binary variables, the server may increase or decrease the size of the received dynamic variables. Only the current size is sent back to the client.

Large and dynamic alpha and binary variables are only supported with automatic RPC execution, that is without using Natural RPC stubs.

In case of dynamic alpha and binary variables the client uses the value of the Natural RPC profile parameter MAXBUFF for the receive buffer length. If either Entire Net-work is used as transport layer or the Natural profile parameter ACIVERS is less than 3 the value for MAXBUFF must not exceed:

- 32 (ACIVERS=1, Entire Net-work and TCP/IP)
- 30 (ACIVERS=2, Entire Net-work and TCP/IP)
- 30 (ACIVERS=3 and above, Entire Net-work only)

Maximum Length for Node and Server Names Increased to 32 Characters

With Natural RPC Version 5.1.1, the maximum length for node and server name has been increased to 32 characters to be compliant with the EntireX Broker ACI. This enhancement allows you to specify a fully qualified TCP/IP node name and makes the etc/hosts and etc/services definitions obsolete.

Neither the interface nor the internal structure of the local directory NATCLTGS has been changed. See also Support of Long Node and Server Names below.

Support of the EntireX Broker ACI V6

The Natural RPC profile parameter ACIVERS has been enhanced to enable you to specify Version 6.

Support of SSL for the TCP/IP Communication

Secure Socket Layer (SSL) support for the TCP/IP communication to the EntireX Broker has been introduced. To enable the EntireX Broker to recognize that the TCP/IP communication should use SSL, you have to use one of the following methods:

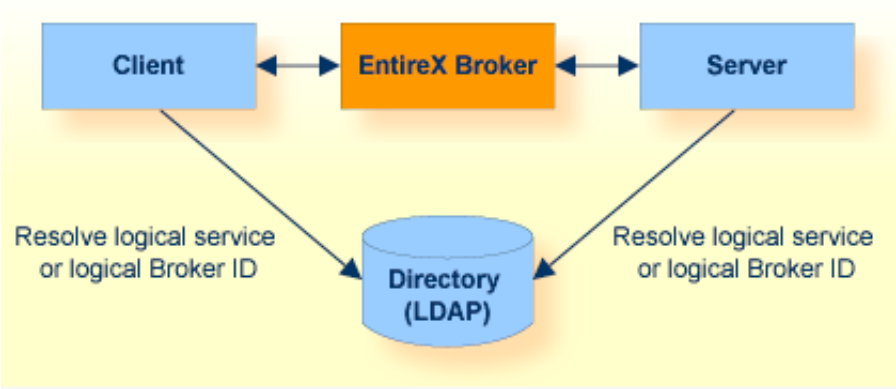
- Append the string :SSL to the node name.
- Prefix the node name with the string //SSL:

To use SSL, an SSL parameter string must be passed to the EntireX Broker on the very first call.

For more details about SSL and the SSL parameter string, see the EntireX documentation.

Support of EntireX Location Transparency

With EntireX, location transparency is possible. Instead of using the physical node name and the physical server name, a server can be addressed by a logical name. This makes the location of the EntireX Broker and the name of the server transparent to clients and servers.The logical name is mapped to the physical node and server names by the EntireX Broker stub before it is used the first time.



For more details about the EntireX Location Transparency, see the **EntireX documentation**.

To take advantage of location transparency, the Natural RPC has been enabled to accept a logical name wherever only a physical node and a physical server name could be specified before.

The maximum length of a logical name is 192 characters. To avoid new Natural profile parameters, a logical name is specified in the server name and node name part of the already existing parameters. There are two kinds of logical names:

- **Logical node names**
  With a logical node name, you specify a logical name for a node only in conjunction with a physical server name.
- **Logical services**
  With a logical service, you specify a logical name for both the node and the server. To define a logical service, the node name has to be set to *, and the server name contains the logical service name.

The following components refer to node and server names:

- The Natural profile parameters SRVNODE, SRVNAME, DFS and RDS.
- Service maintenance of the SYSRPC utility
- Service directory (NATCLTGS)
- User exits USR2007N, USR2071N
- Service programs RPCERR, RPCINFO

The new information about logical service names is stored in the local directory NATCLTGS without changing its interface or its internal structure. All information is stored as attribute/ value pairs and the logical service names are just added under a new attribute.

The interface to the user application programming interfaces (user exits) USR2007N and USR20071N has not been changed. To be able to retrieve or specify long logical service names, the respective PDA fields have been defined with the VALUE RESULT option and their length has been increased.

New User Exit USR2035N

For the support of the Secure Socket Layer (SSL) communication, the new user exit USR2035N is provided to set the required SSL parameter string.

Prerequisites

- EntireX Version 6.2 if you want to use location transparency.

Enhanced Features

- Support of Multiple EntireX Broker Logons (User EXIT USR2071N)
- Enhancements to User Exits
- Enhancements to Status Function RPCINFO

Support of Multiple EntireX Broker Logons (User Exit USR2071N)

The user exit USR2071N has been enhanced to allow you to Logon to multiple EntireX Brokers concurrently. That is, if you have already issued a Logon to an EntireX Broker, a Logon to a new EntireX Broker does no longer imply the Logoff from the current one.

Enhancements to User Exits

To support long node and server names, the user exits USR2007N and USR2071N have been enhanced to accept and return node and server names having a length of up to 192 characters. Existing callers who are using 8-character-long names will still work and need not be adapted.

Enhancements to Status Function RPCINFO

To support long node and server names, the RPCINFO subprogram has been enhanced to return the up to 32 character long physical node and server names. Existing callers which use 8 character long names will still work and need not be adapted. For compatibilty reasons, the RPCINFOL local data area still uses 8-character-long node and server names.

SYSRPC Utility Enhancements and Modifications

With Natural RPC Version 5.1.1, the following changes and enhancements have been made to the Natural SYSRPC utility:

- Support of Long Node and Server Names
- Support of EntireX Location Transparency
- Add Properties for Old Remote Directory and the Transport Protocol to Local Directory

A short description of these changes and enhancements is given below. For more details, refer to the SYSRPC utility documentation.

Support of Long Node and Server Names

To be compliant with the EntireX Broker, the Service Directory Maintenance function enables you to specify node and server names of up to 32 characters. For compatibility reasons, a new editing functionality of the Service Directory Maintenance is provided in addition to the existing one. The new editing functionality will only be used if the new Natural RPC is activated. Otherwise, the old editing functionality will still be used.

Support of EntireX Location Transparency

To support the EntireX Location Transparency, the Service Directory Maintenance function enables you to specify logical node names and logical services of up to 192 characters. For compatibility reasons, this support is only available if the new Natural RPC is activated.

Add Properties for Old Remote Directory and the Transport Protocol to Local Directory

The RDS specific properties "expiration time" and "unique directory identifier" are integrated into the local directory using appropriate tags.

The property "transport protocol" has also been added, which makes the Natural profile parameter ACIPATT obsolete. For compatibility reasons, ACIPATT is still supported, but ignored.

Changed Features

- Implicit END TRANSACTION in a Conversation
- Release of Adabas Retain Sets
- Changes to RPCERR
- Changes to PIng and TErminate Messages

Implicit END TRANSACTION in a Conversation

If OPRB=OFF has been set on the Natural RPC server side, an implicit END TRANSACTION statement is issued at the end of the execution of each remote subprogram. This may lead to inconsistent data in the database if a conversation is established which should be rolled back as part of the database transaction when the modifications are already committed.

With Natural RPC Version 5.1.1, the OPRB setting has no effect on the conversation. An implicit END TRANSACTION is still executed after execution of the last remote CALLNAT of a conversation if OPRB=OFF is specified.

Non-conversational CALLNATs are not affected and behave as before. That is if OPRB=OFF is specified on the server side, an implicit END TRANSACTION is executed at the end of the execution of the remote subprogram.

Release of Adabas Retain Sets

At the end of a non-conversation CALLNAT and at the end of a conversation, a RELEASE SETS is issued to release all Adabas retain sets. This ensures that the next request which may be for a different client will not see the data.

Changes to RPCERR

To support long node and server names, the RPCERR program shows the up to 32 character long physical node and server names. The display window has been adapted accordingly. For compatibility reasons, the long names will only be shown if the new RPC is activated for this session. Otherwise, the short names will still be shown.

Changes to PIng and TErminate Messages

The PIng and TErminate messages have been enhanced and indicate that there is a Natural RPC server (in contrast to an EntireX RPC server) and the operating system where the Natural RPC server is running (e.g. MVS/ESA).

Natural RPC Installation

No special installation steps are required for the new Natural RPC.

To activate the new Natural RPC, you must set the new dynamic startup parameter **rpcvers** to **5.1.1** (including the dots)., that is specify **rpcvers=5.1.1** in the štargetŠ field of Natural program-item shortcut. Please note that rpcvers cannot be specified in the NATPARM.

If you do not specify the dynamic startup parameter rpcvers, the current Natural RPC version is used (default).

